

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the matter of)	
)	
Inquiry Regarding Carrier Current Systems)	ET Docket No. 03-104
including Broadband over Power Line Systems)	
)	
)	

COMMENTS

Introduction

These comments are submitted on behalf of the National Association of Shortwave Broadcasters (“NASB”), which represents eighteen FCC-licensed, privately owned shortwave broadcast stations located in the United States.¹

The Commission has requested information and data regarding issues related to Broadband over Power Lines systems (BPL) as part of its consideration of changes to Part 15 of the Commission’s rules in order to facilitate the deployment of this technology. NASB’s position is that BPL, or any other developmental technology, should be introduced *only* if existing proven frequency applications are provided the maximum protection so as to prevent harmful interference with existing uses. To that end, NASB has consistently supported the reasonable concerns of public protection, disaster relief, defense and security users of HF frequencies when those users have expressed concerns regarding harmful interference from proposed users. Because NASB believes BPL to be a disruptive technology that significantly interferes with many existing radio applications now in use in the bands between 2 and 30 MHz, it concludes that BPL should not be authorized at this time.

¹ KSDA; WMLK; WEWN; WYFR; KFBS; WTJC; WBOH; WSHB; WHRI; KWHR; WHRA; WRMI; KTWR; KAIJ; KVOH; WJIE; KNLS; and, WINB.

Technical/Interference Concerns

These Comments address concerns related to two different BPL technologies: Access and In-House. Both systems employ multiple carrier signals spread over a broad range of frequencies. The conducted energy from a BPL system causes harmful interference to radio communications via two possible paths. First, the RF energy is carried through electrical wiring to radio receivers connected to the electrical wiring. Second, at frequencies below 30 MHz, where wavelengths exceed 10 meters, long stretches of power line wiring will act as an antenna, permitting the BPL RF energy to be radiated over the airwaves. Thus, it would have the effect of raising the already high noise floors for radio reception. Since there is relatively low propagation loss at these frequencies, such radiated energy would cause harmful interference to portable or mobile radio receivers, even those at a considerable distance from the power lines.

The adoption of a BPL system in the United States, using wide spectrum techniques from 4.5 MHz to 21 MHz would result in the *de facto* “jamming” of international shortwave broadcasts intended for listeners in the United States. Since the clear intention of the international Radio Regulations is to avoid harmful interference, the U.S. has a responsibility to limit, or remove, any source of interference with such reception. The concern of NASB is that BPL, in fact, introduces such harmful interference.

Several papers and commentators have raised significant concerns regarding the viability of BPL in light of the above issues.² The BBC and its broadcasting arm, VT Merlin, are strong in their objection to any relaxation of interference to the broadcast bands. A report³ developed by Jonathon Stott of the BBC Research and Development Group, demonstrates that BPL systems are a serious threat to broadcasting. The European Broadcast Union developed a proposal on BPL systems and their emissions which was first presented as a report to the DRM membership. DRM, the leading digital methodology for the future of radio, has expressed strong concerns, as

² See, e.g. “Power Line Communications: A Threat for Radio Listening?” Prof. Filippo Gianetti, Università degli Studi di Pisa (<http://www.edxc.org/modules.php?op=modload&name=Sections&file=index&req=viewarticle&artid=1&page=1>). See also, “Physical and Regulatory Constraints for Communication over the Power Supply Grid” by Martin Gebhardt, Frank Weinmann and Klaus Dostert, University of Karlsruhe.

³ See. <http://www.bbc.co.uk/rd/pubs/whp/whp013.html>.

has the European DX Council, the Radio Society of Great Britain⁴ and the Austrian Amateur Radio Society.⁵

It will be impractical, if not impossible, to develop standardized measurement techniques to ensure compliance at any protection level that the Commission might adopt. BPL systems use electrical wiring within a building as the means to transmit data; consequently, the impedance of the building system changes every time a device or appliance is added, removed, or turned off or on. Such a widely fluctuating environment makes modeling of any such system extremely difficult, if not impossible. Radiated emissions from the RF energy imposed on the building's electrical wiring would vary from location to location based on each building's wiring and power requirements. Since the building wiring would also serve as an antenna, that wiring structure would have to be accounted for in any evaluation methodology. Certainly, measurements derived in any laboratory setting would be invalid, as each system would constitute a unique set of parameters to be measured and evaluated.

Public Protection, Disaster Relief and Defense

Many of the authorized services in the fixed, land mobile, aeronautical mobile, maritime mobile, radiolocation, broadcast radio, amateur radio terrestrial and satellite, and radio astronomy frequencies play an important role in Homeland Security and, arguably, would be severely compromised by interference from BPL. These services currently provide reliable and proven methods of communication when other means of communication have been disrupted. It would be untimely and ill-advised to introduce any new source of potential interference that might have an adverse affect on these communications. This effect would be quite noticeable in both urban and rural settings and imposes on *everyone* served by the power line, whether they receive the service or not.

Recommendation

In the event there is an adoption and deployment of BPL, NASB would require that operable BPL systems demonstrate, and the FCC certify, that the magnetic field of the emissions should be 0 dBu V/m, measured at a distance of one meter, in a bandwidth of 9 kHz, and utilizing a peak detector. This is the only methodology that can guarantee adequate protection to the radio spectrum from 2 to 30 MHz from BPL interference.

⁴ <http://www.rsgb.org/emc/pltnew.htm>

⁵ <http://www.powerline-plc.info/video>

Conclusion

Accordingly, NASB believes that BPL systems jeopardize the current use of the radio bands between 2 and 30 MHz. NASB joins in the expressed concerns about BPL interference to other licensed radio spectrum users in these bands. NASB encourages the Commission to look beyond the temporary appeal of BPL to undergo a thorough examination of the science, to recognize the collateral damage caused by BPL and to provide maximum protection of the proven existing radio applications.

Respectfully submitted,

NATIONAL ASSOCIATION OF SHORTWAVE BROADCASTERS